*FIG. 1*

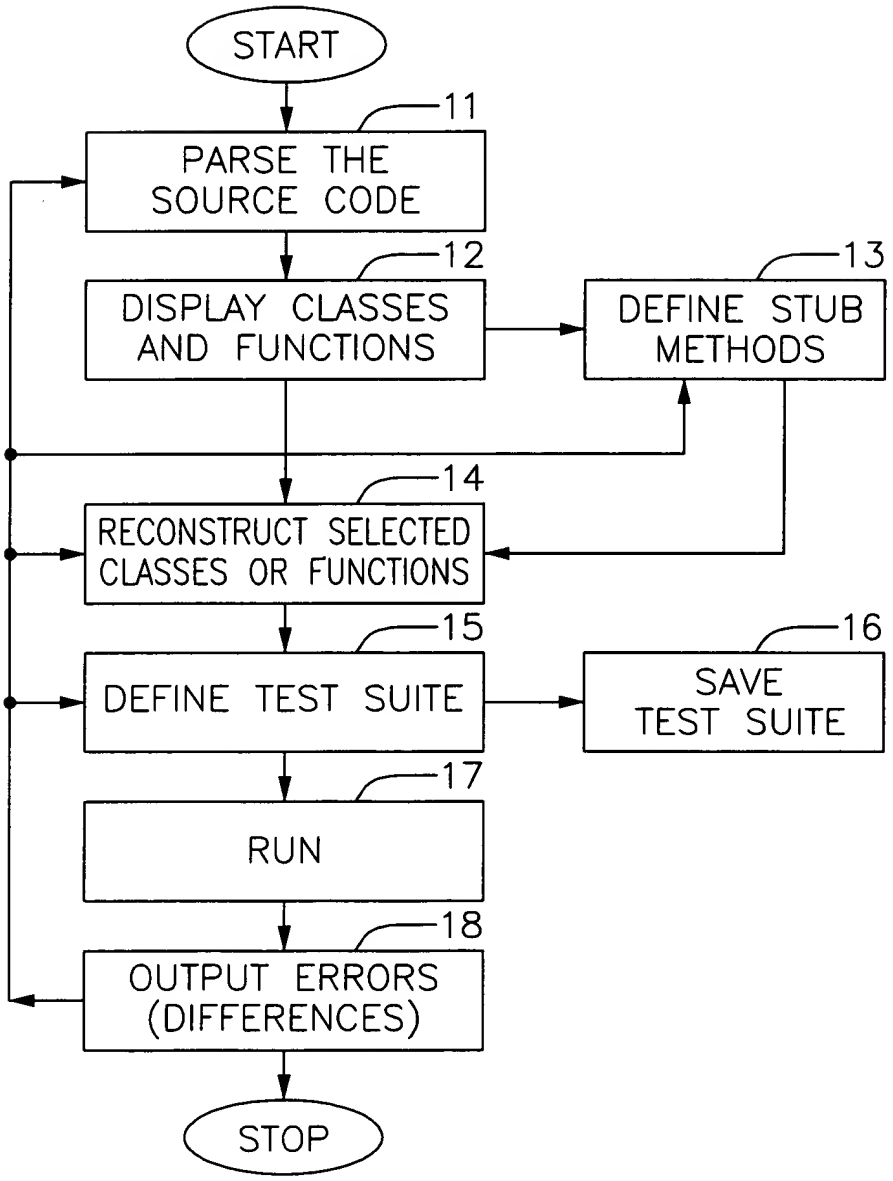


*FIG.2*

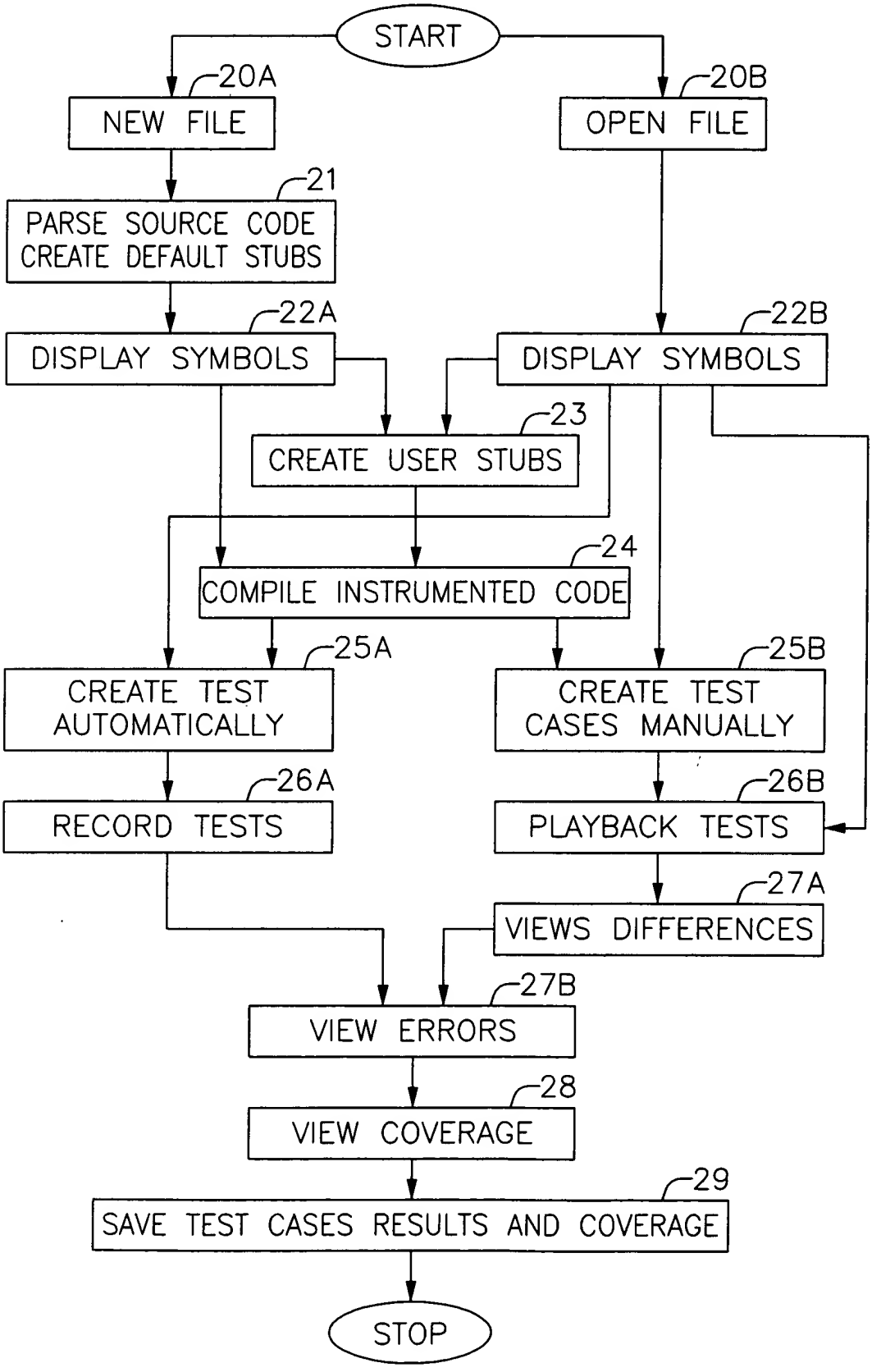

START
20A
NEW FILE
20B
OPEN FILE
21
PARSE SOURCE CODE
CREATE DEFAULT STUBS
22A
DISPLAY SYMBOLS
22B
DISPLAY SYMBOLS
23
CREATE USER STUBS
24
COMPILE INSTRUMENTED CODE
25A
CREATE TEST
AUTOMATICALLY
25B
CREATE TEST
CASES MANUALLY
26A
RECORD TESTS
26B
PLAYBACK TESTS
27A
VIEWS DIFFERENCES
27B
VIEW ERRORS
28
VIEW COVERAGE
29
SAVE TEST CASES RESULTS AND COVERAGE
STOP

FIG. 3

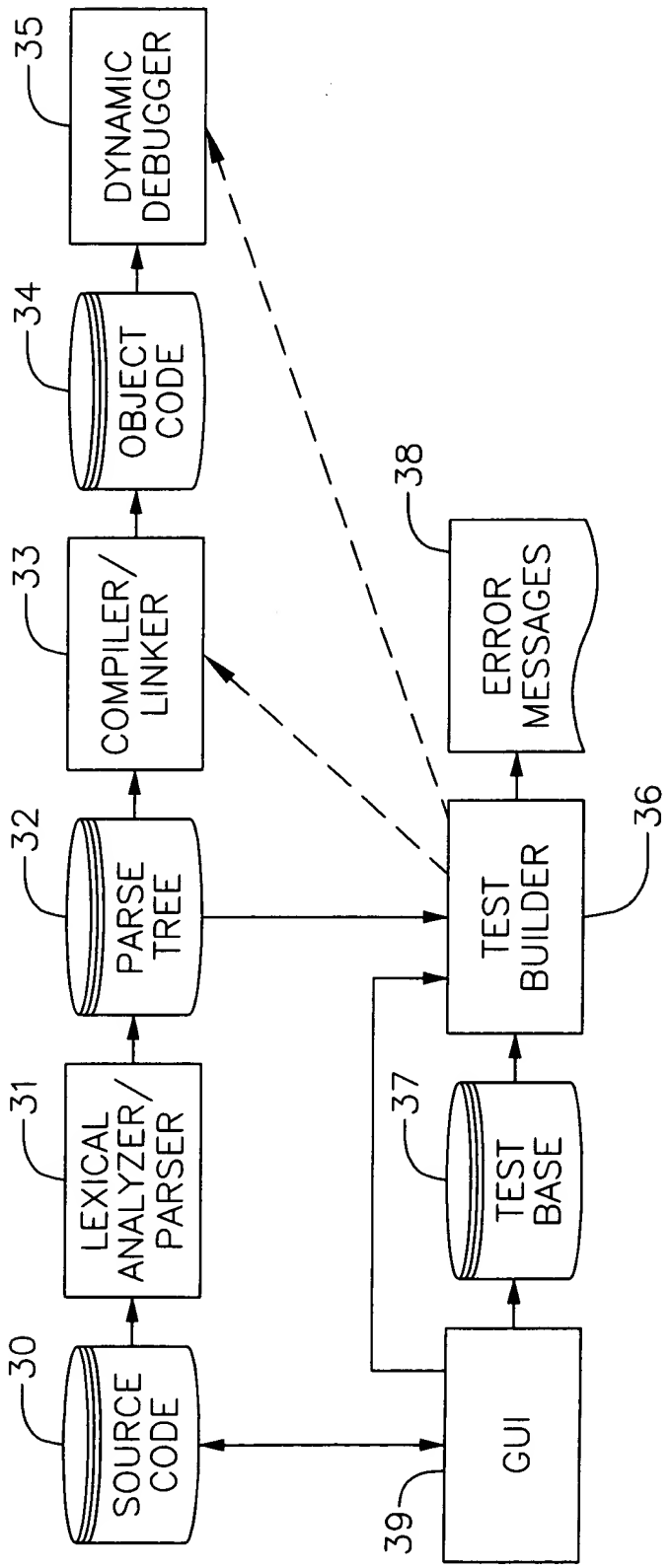

35
DYNAMIC DEBUGGER
34
OBJECT CODE
33
COMPILER/ LINKER
32
PARSE TREE
31
LEXICAL ANALYZER/ PARSER
30
SOURCE CODE
38
ERROR MESSAGES
36
TEST BUILDER
37
TEST BASE
39
GUI

*FIG. 4*

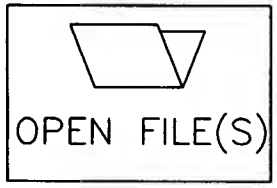
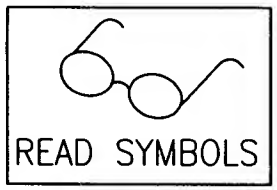
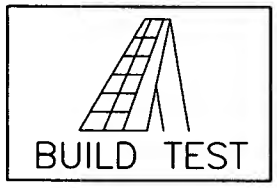
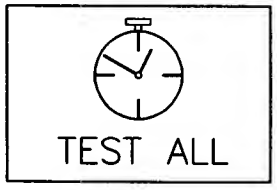
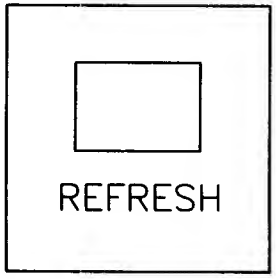
| BUTTON | NAME | ACTION |
|---|---|---|
|   | OPEN FILE(S) | OPENS A FILE CHOOSER FROM WHICH YOU CAN SELECT ONE OR MORE FILES. OPENED FILES WILL BE DISPLAYED IN THE FILE LIST. |
|   | READ SYMBOLS | PARSES THE SELECTED FILE AND REPRESENTS ITS SYMBOLS IN THE SYMBOL TREE. |
|   | BUILD TEST | PARSES THE CURRENT FILE, READS ITS SYMBOLS, INSTRUMENTS IT IF NECESSARY, THEN COMPILES AND LINKS IT. |
|   | TEST ALL | BUILDS AND TESTS ALL FILES CURRENTLY IN THE FILE LIST. |
|   | REFRESH | RECREATES YOUR SYMBOL TREE FROM ITS CURRENT SYMBOL REPOSITORY, CLOSES ALL EXPANDED NODES, AND DESELECTS THE CURRENTLY SELECTED NODE. IF THE FILE IS CLOSED, IT WILL CLEAR THE SYMBOL TREE AND OTHER TABS. |

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FIG. 5

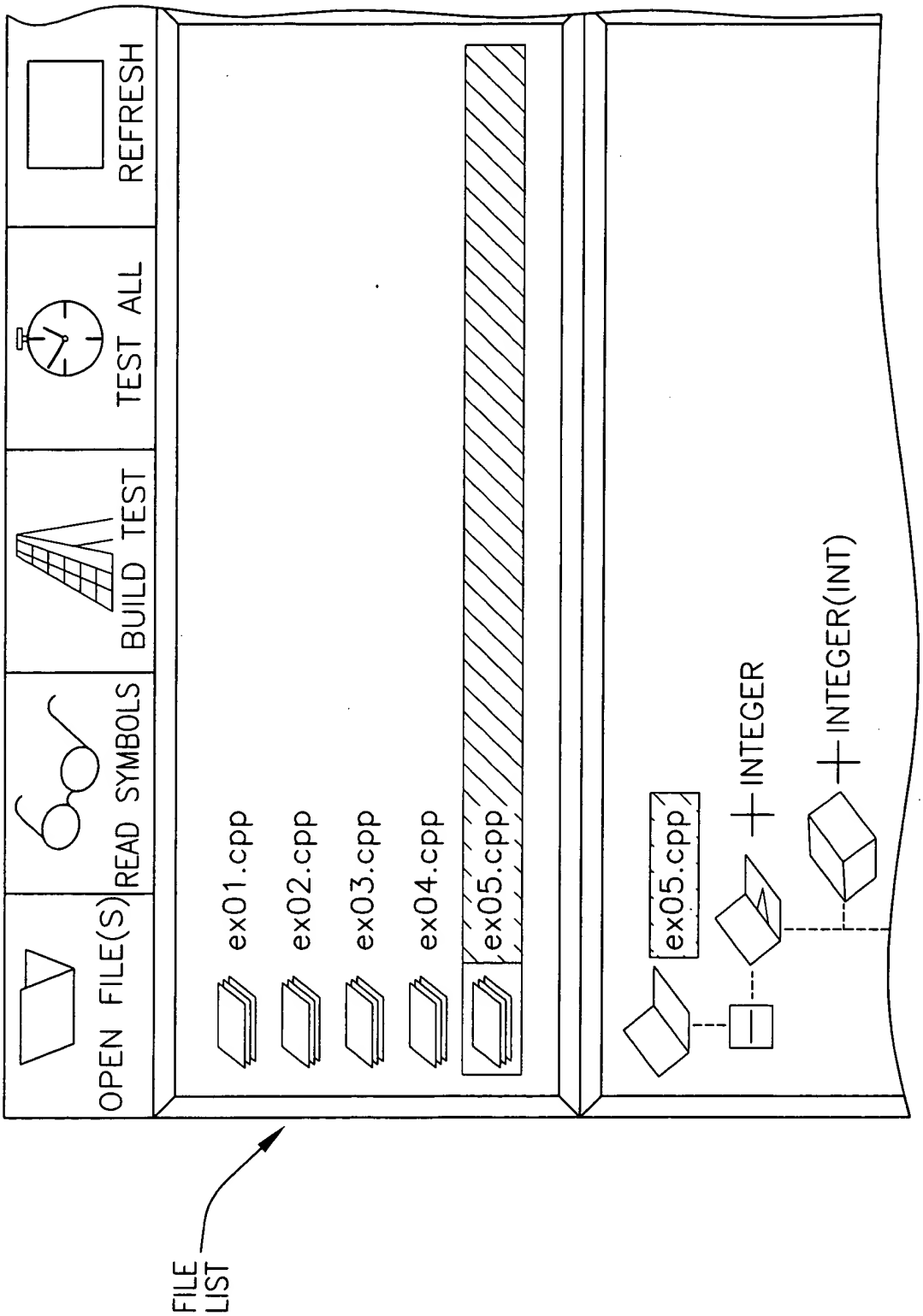
OPEN FILE(S)
READ SYMBOLS
BUILD TEST
TEST ALL
REFRESH
ex01.cpp
ex02.cpp
ex03.cpp
ex04.cpp
ex05.cpp
ex05.cpp
INTEGER
INTEGER(INT)
FILE LIST

*FIG. 6*

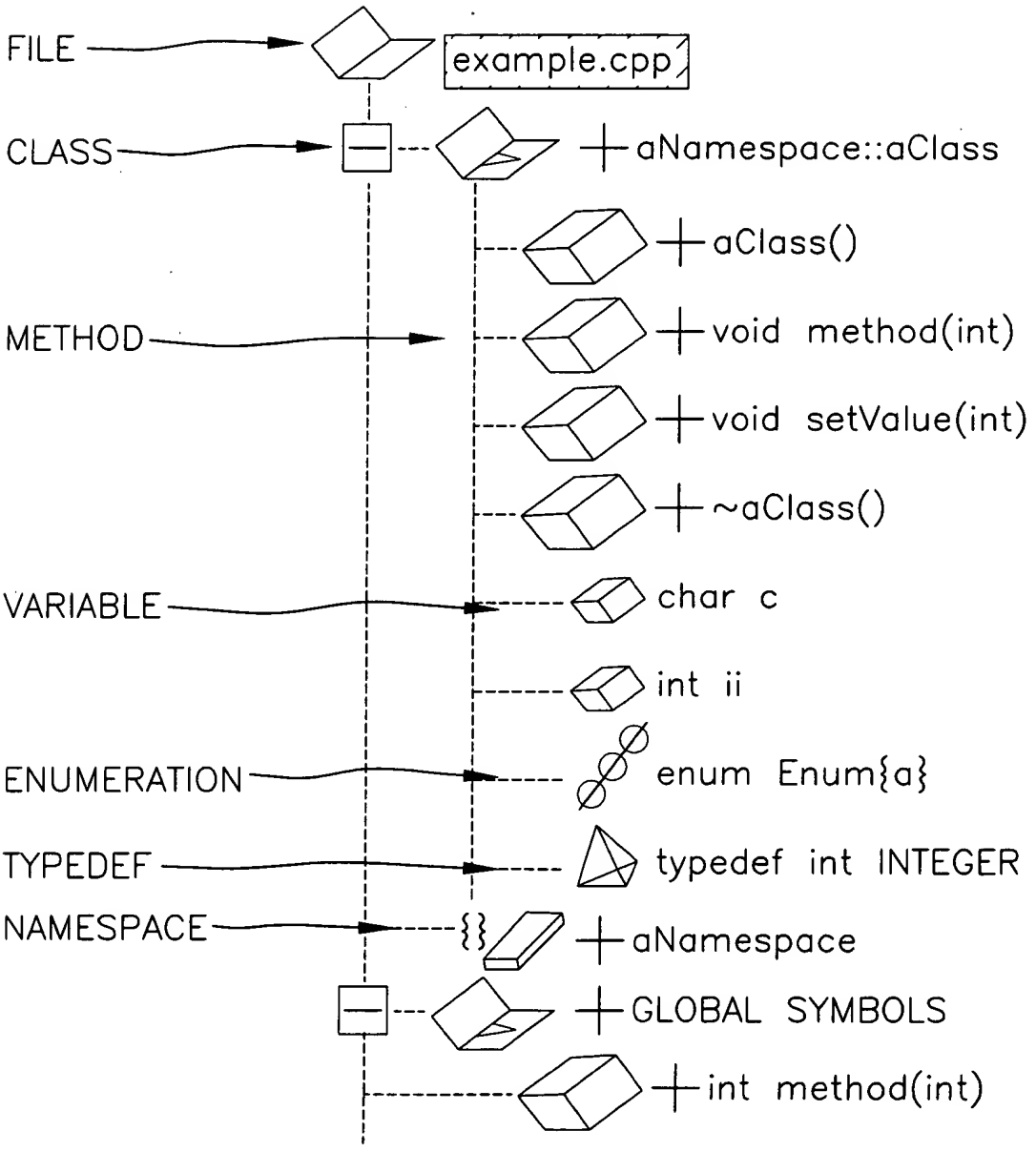
FILE
example.cpp
CLASS
aNamespace::aClass
aClass()
METHOD
void method(int)
void setValue(int)
~aClass()
VARIABLE
char c
int ii
ENUMERATION
enum Enum{a}
TYPEDEF
typedef int INTEGER
NAMESPACE
aNamespace
GLOBAL SYMBOLS
int method(int)

*FIG. 7A*

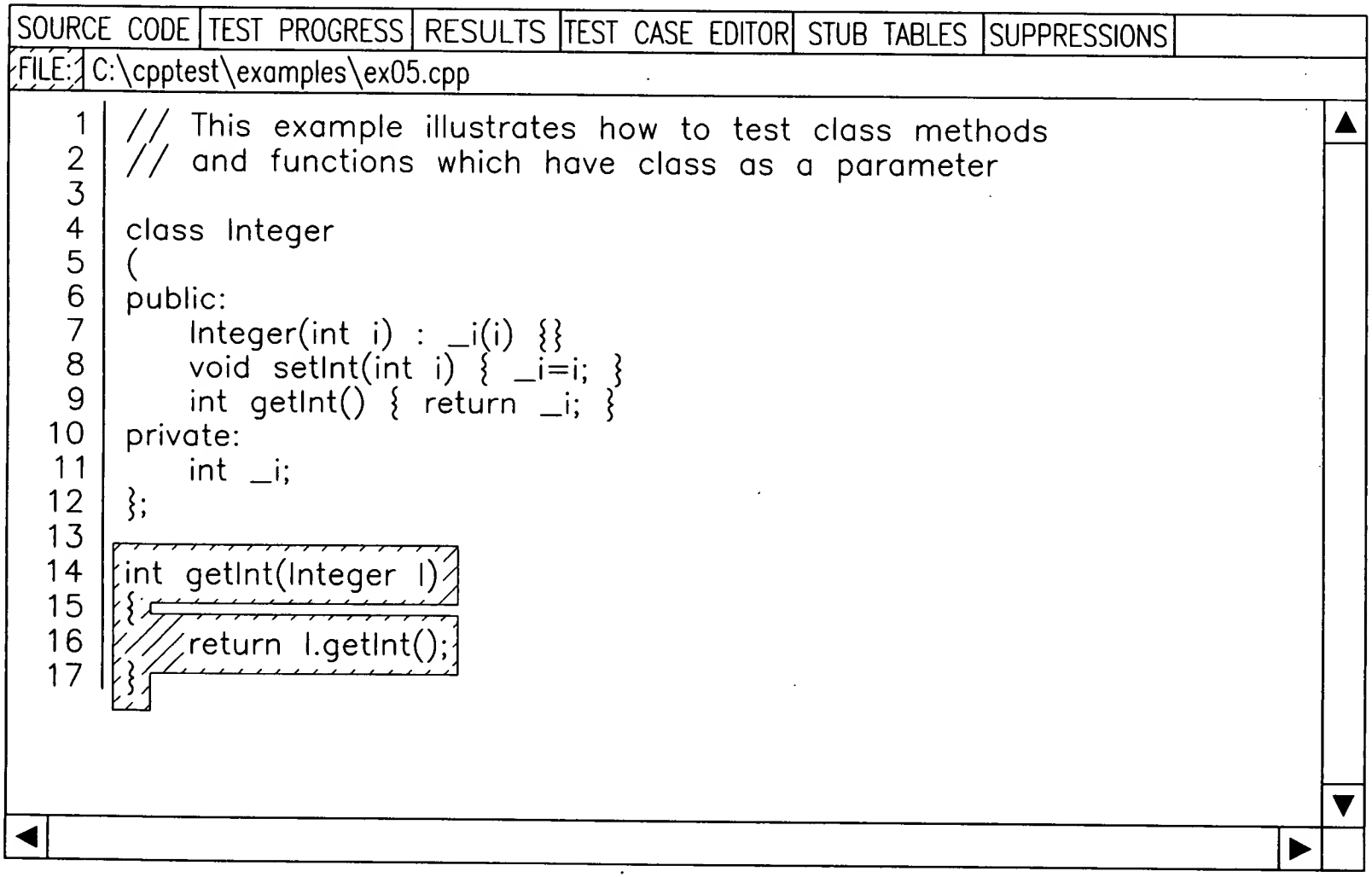


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*FIG. 7B*

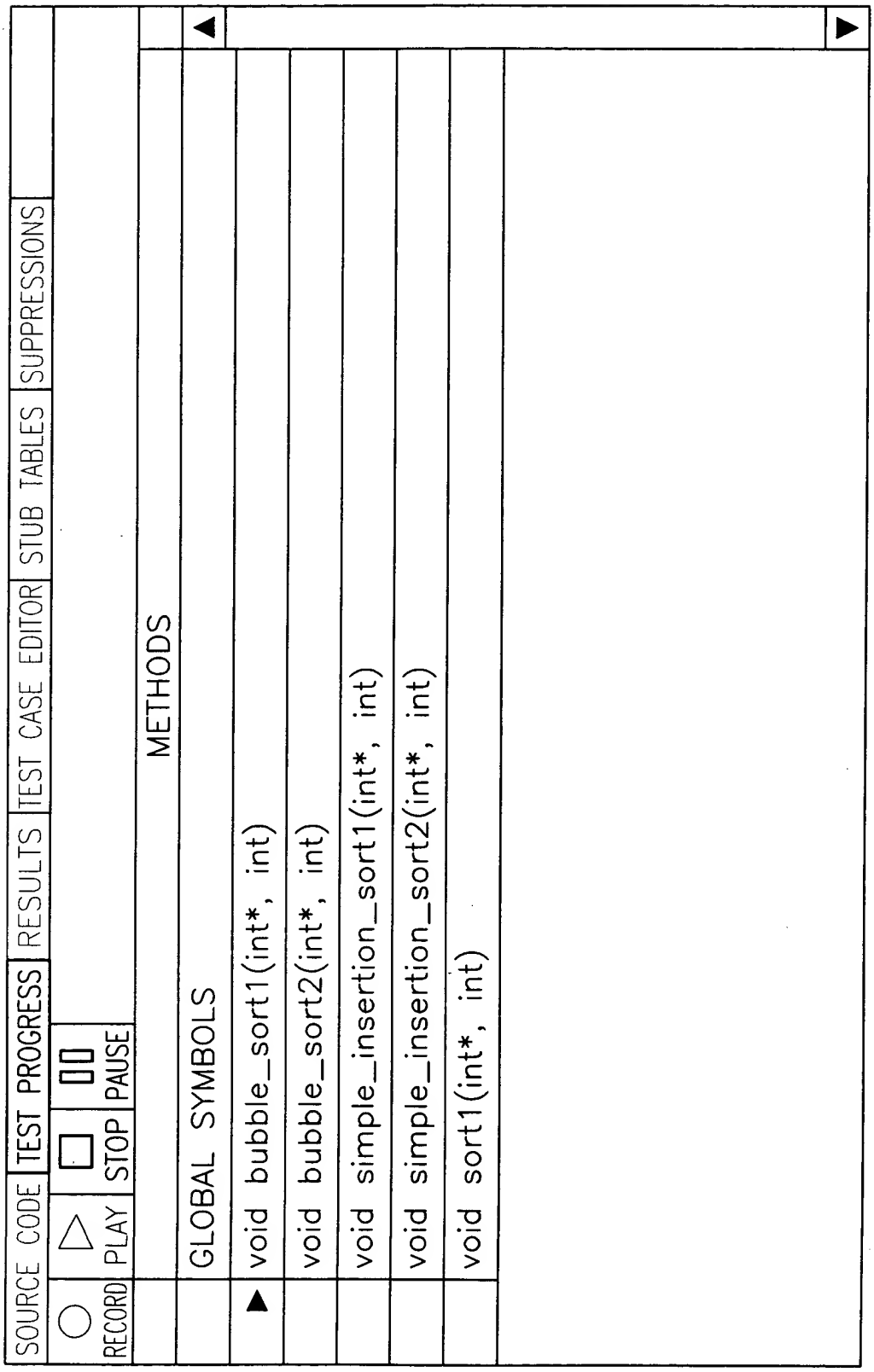
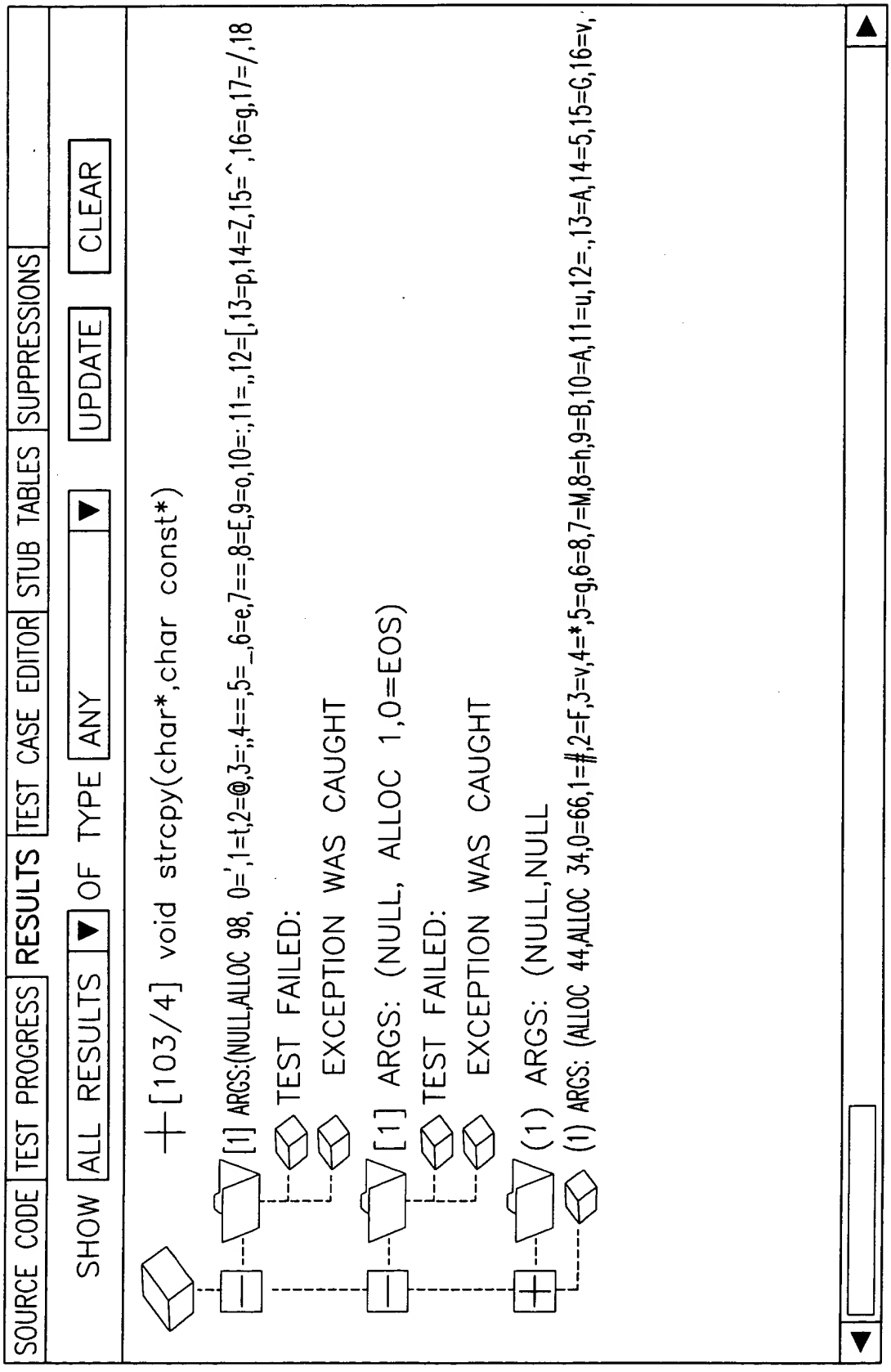

SOURCE CODE
TEST PROGRESS
RESULTS
TEST CASE EDITOR
STUB TABLES
SUPPRESSIONS
RECORD
PLAY
STOP
PAUSE
METHODS
GLOBAL SYMBOLS
void bubble_sort1(int*, int)
void bubble_sort2(int*, int)
void simple_insertion_sort1(int*, int)
void simple_insertion_sort2(int*, int)
void sort1(int*, int)

FIG. 7C


SOURCE CODE
TEST PROGRESS
RESULTS
TEST CASE EDITOR
STUB TABLES
SUPPRESSIONS
SHOW
ALL RESULTS
OF TYPE
ANY
UPDATE
CLEAR
[103/4] void strcpy(char*,char const*)
[1] ARGS:(NULL,ALLOC 98, 0=',1=t,2=@,3=;,4==,5=_,6=e,7==,8=E,9=o,10=:,11=,,12=[,13=p,14=Z,15=^,16=g,17=/,18
TEST FAILED:
EXCEPTION WAS CAUGHT
[1] ARGS: (NULL, ALLOC 1,0=EOS)
TEST FAILED:
EXCEPTION WAS CAUGHT
(1) ARGS: (NULL,NULL
(1) ARGS: (ALLOC 44,ALLOC 34,0=66,1=#,2=F,3=v,4=*,5=g,6=8,7=M,8=h,9=B,10=A,11=u,12=.,13=A,14=5,15=G,16=v,

# FIG. 7D

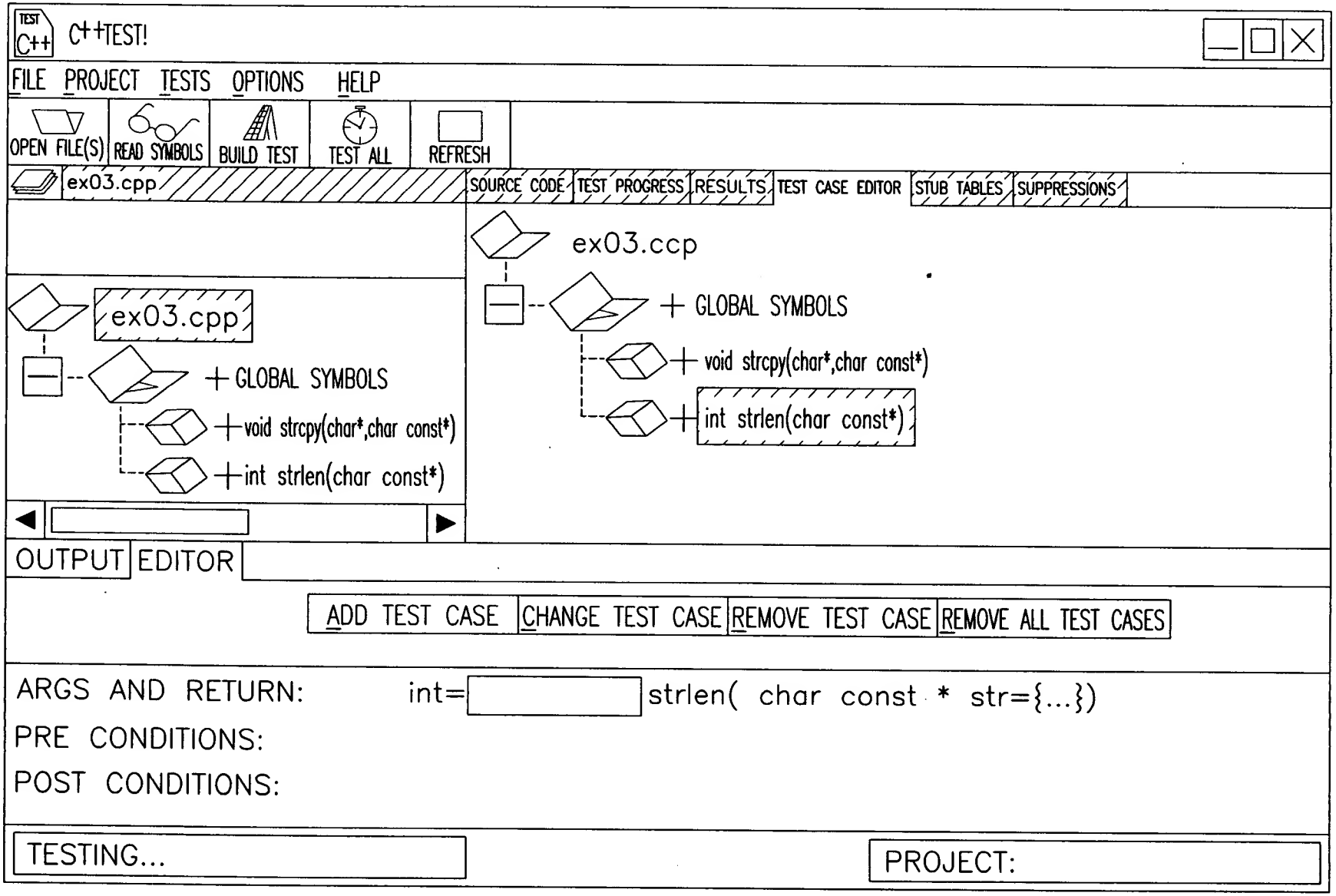



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FIG. 7E

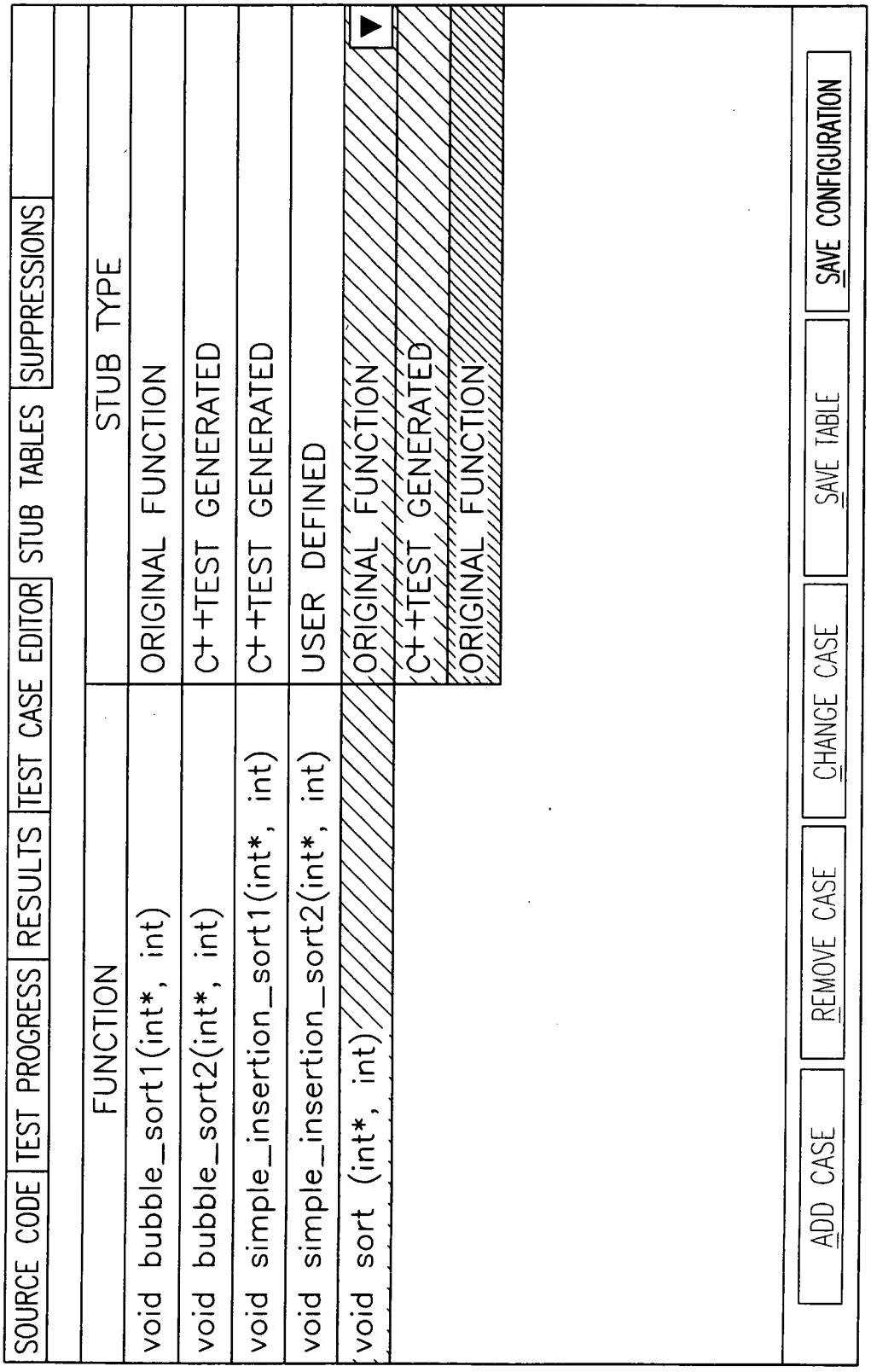
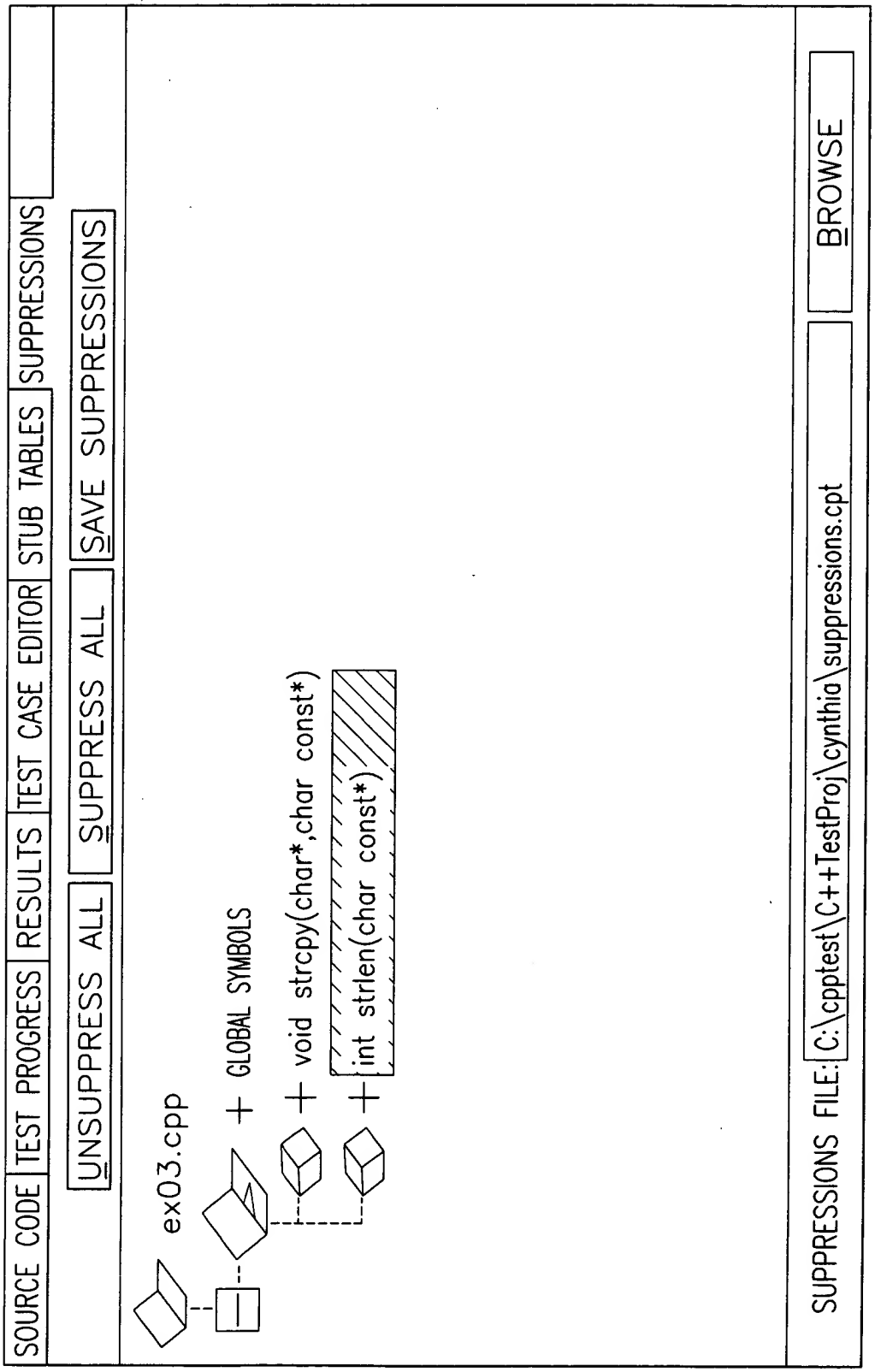

SOURCE CODE
TEST PROGRESS
RESULTS
TEST CASE EDITOR
STUB TABLES
SUPPRESSIONS
FUNCTION
STUB TYPE
void bubble_sort1(int*, int)
ORIGINAL FUNCTION
void bubble_sort2(int*, int)
C++TEST GENERATED
void simple_insertion_sort1(int*, int)
C++TEST GENERATED
void simple_insertion_sort2(int*, int)
USER DEFINED
void sort (int*, int)
ORIGINAL FUNCTION
C++TEST GENERATED
ORIGINAL FUNCTION
ADD CASE
REMOVE CASE
CHANGE CASE
SAVE TABLE
SAVE CONFIGURATION

FIG. 7F


SOURCE CODE
TEST PROGRESS
RESULTS
TEST CASE EDITOR
STUB TABLES
SUPPRESSIONS
UNSUPPRESS ALL
SUPPRESS ALL
SAVE SUPPRESSIONS
ex03.cpp
GLOBAL SYMBOLS
void strcpy(char*,char const*)
int strlen(char const*)
SUPPRESSIONS FILE:
C:\cpptest\C++TestProj\cynthia\suppressions.cpt
BROWSE

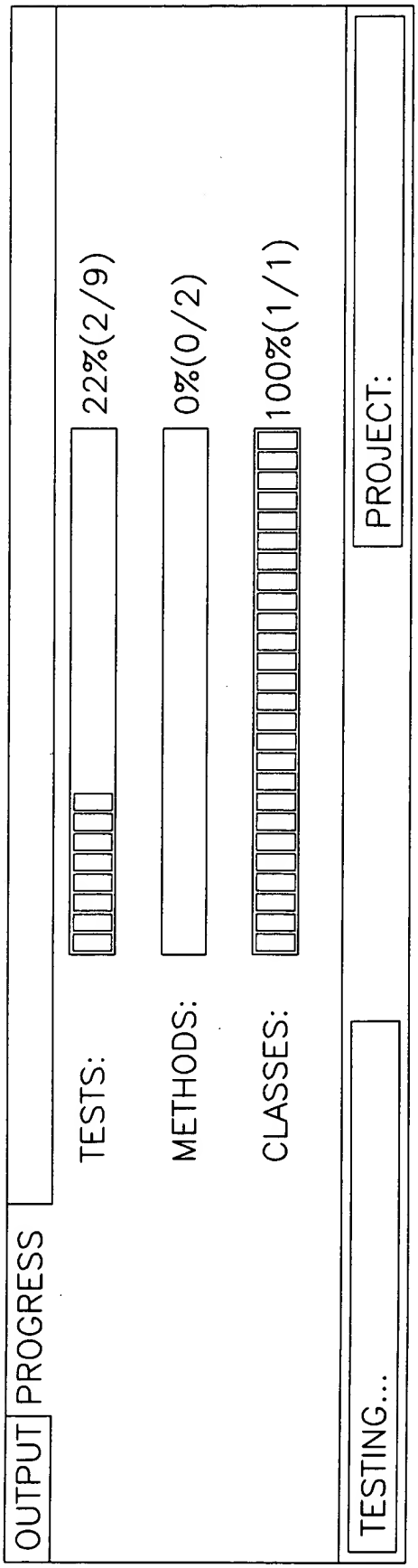

OUTPUT
PROGRESS
TESTS:
22%(2/9)
METHODS:
0%(0/2)
CLASSES:
100%(1/1)
PROJECT:
TESTING...

*FIG. 7G*

*FIG. 7H*

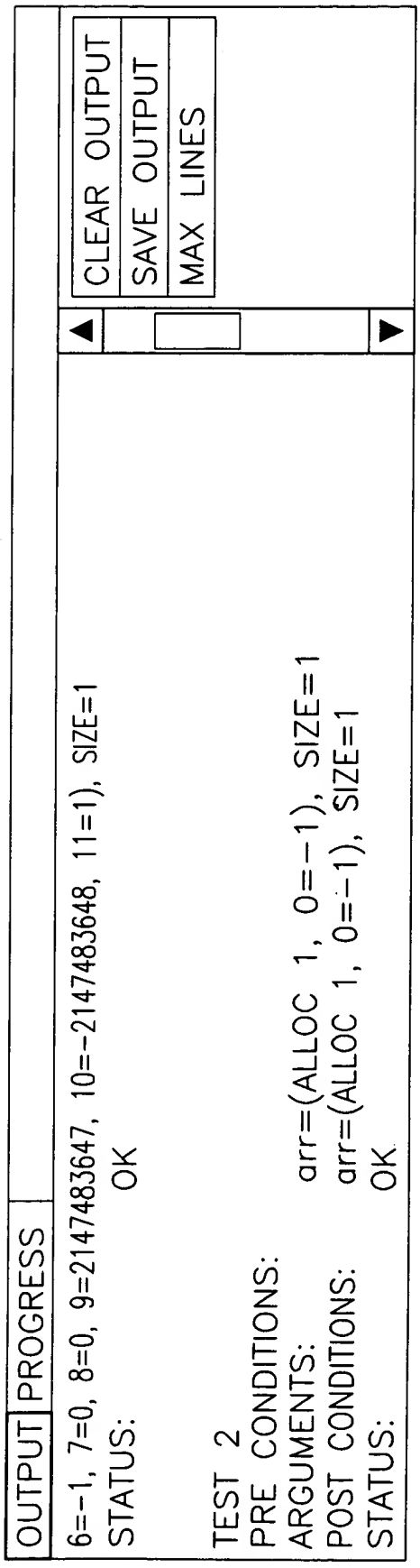
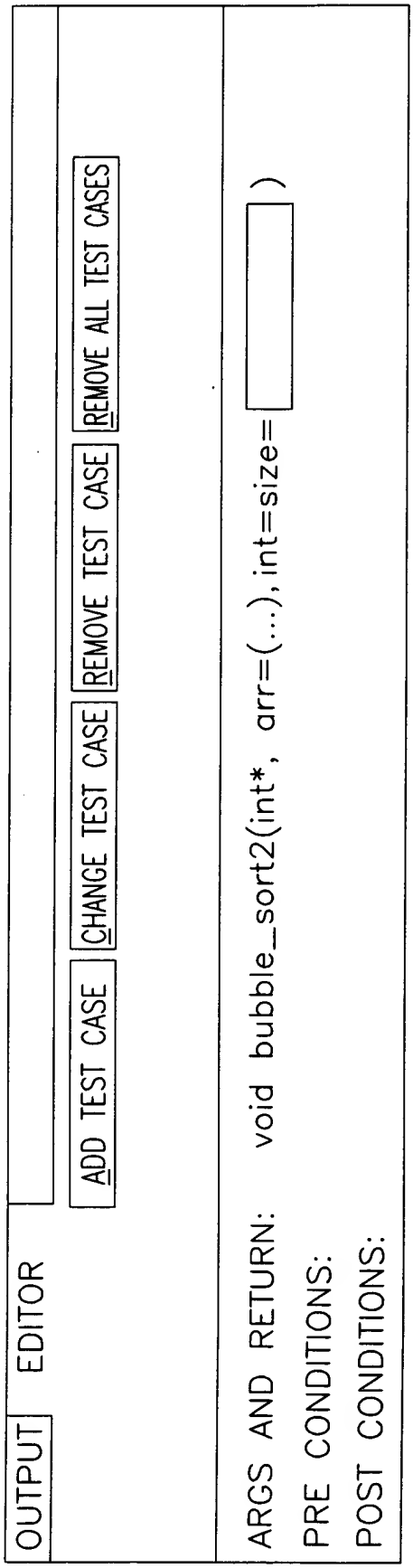

OUTPUT
PROGRESS
6=-1, 7=0, 8=0, 9=2147483647, 10=-2147483648, 11=1), SIZE=1
STATUS: OK
TEST 2
PRE CONDITIONS:
ARGUMENTS: arr=(ALLOC 1, 0=-1), SIZE=1
POST CONDITIONS: arr=(ALLOC 1, 0=-1), SIZE=1
STATUS: OK
CLEAR OUTPUT
SAVE OUTPUT
MAX LINES

*FIG. 7I*


OUTPUT
EDITOR
ADD TEST CASE
CHANGE TEST CASE
REMOVE TEST CASE
REMOVE ALL TEST CASES
ARGS AND RETURN: void bubble_sort2(int*, arr=(...), int=size= )
PRE CONDITIONS:
POST CONDITIONS:

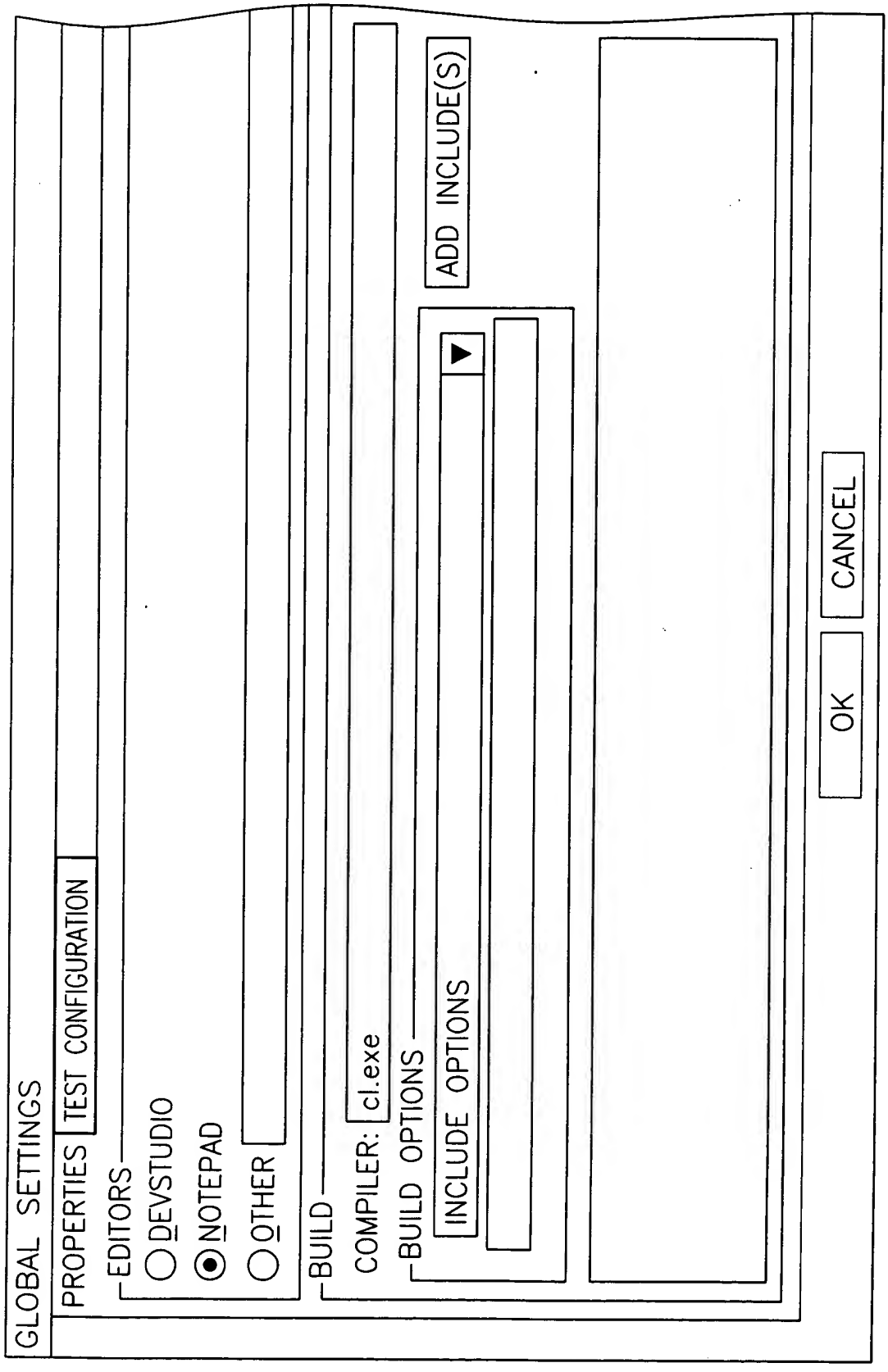

GLOBAL SETTINGS
PROPERTIES
TEST CONFIGURATION
EDITORS
DEVSTUDIO
NOTEPAD
OTHER
BUILD
COMPILER:
cl.exe
BUILD OPTIONS
INCLUDE OPTIONS
ADD INCLUDE(S)
OK
CANCEL

*FIG. 7J*

*FIG.8*

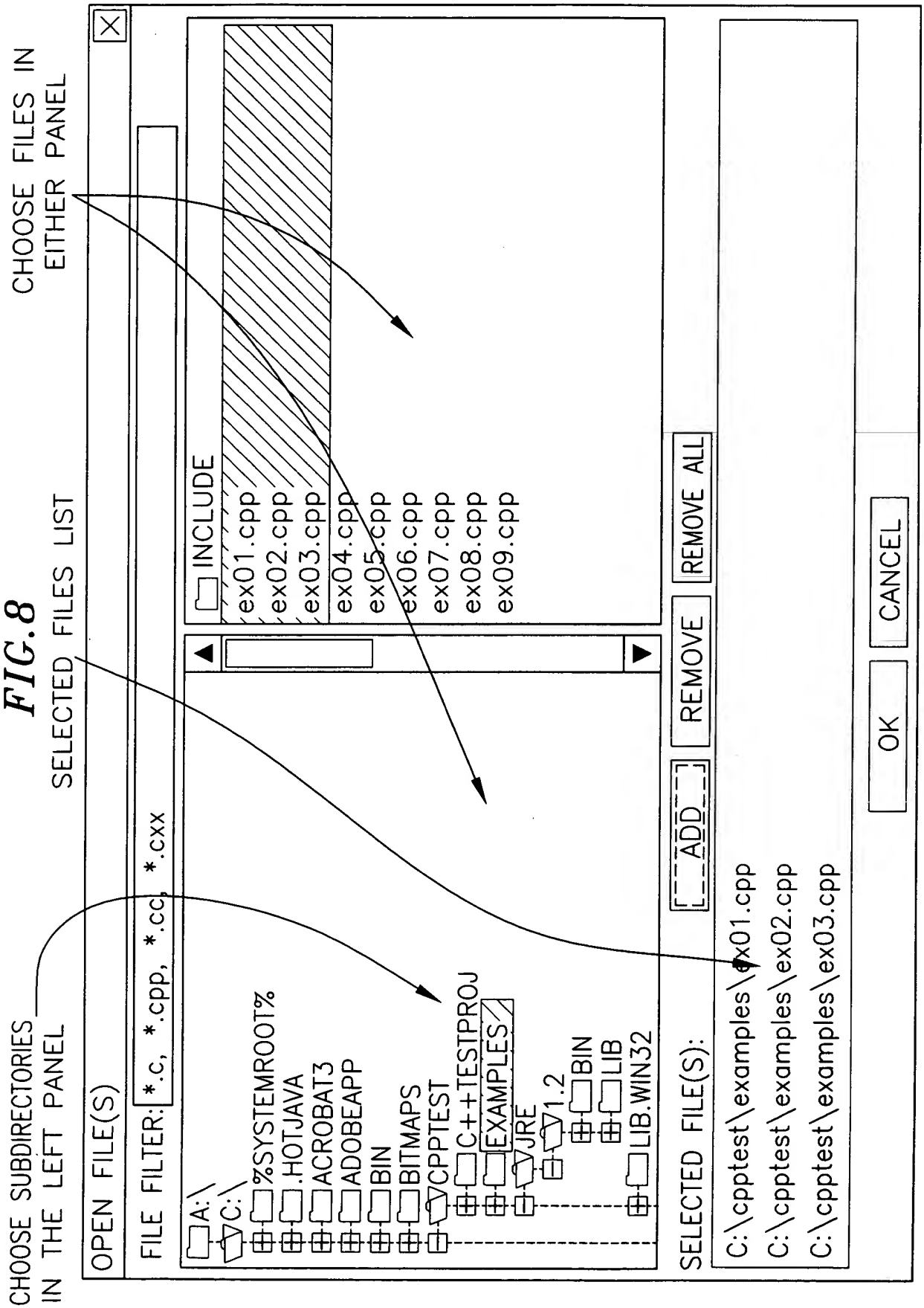
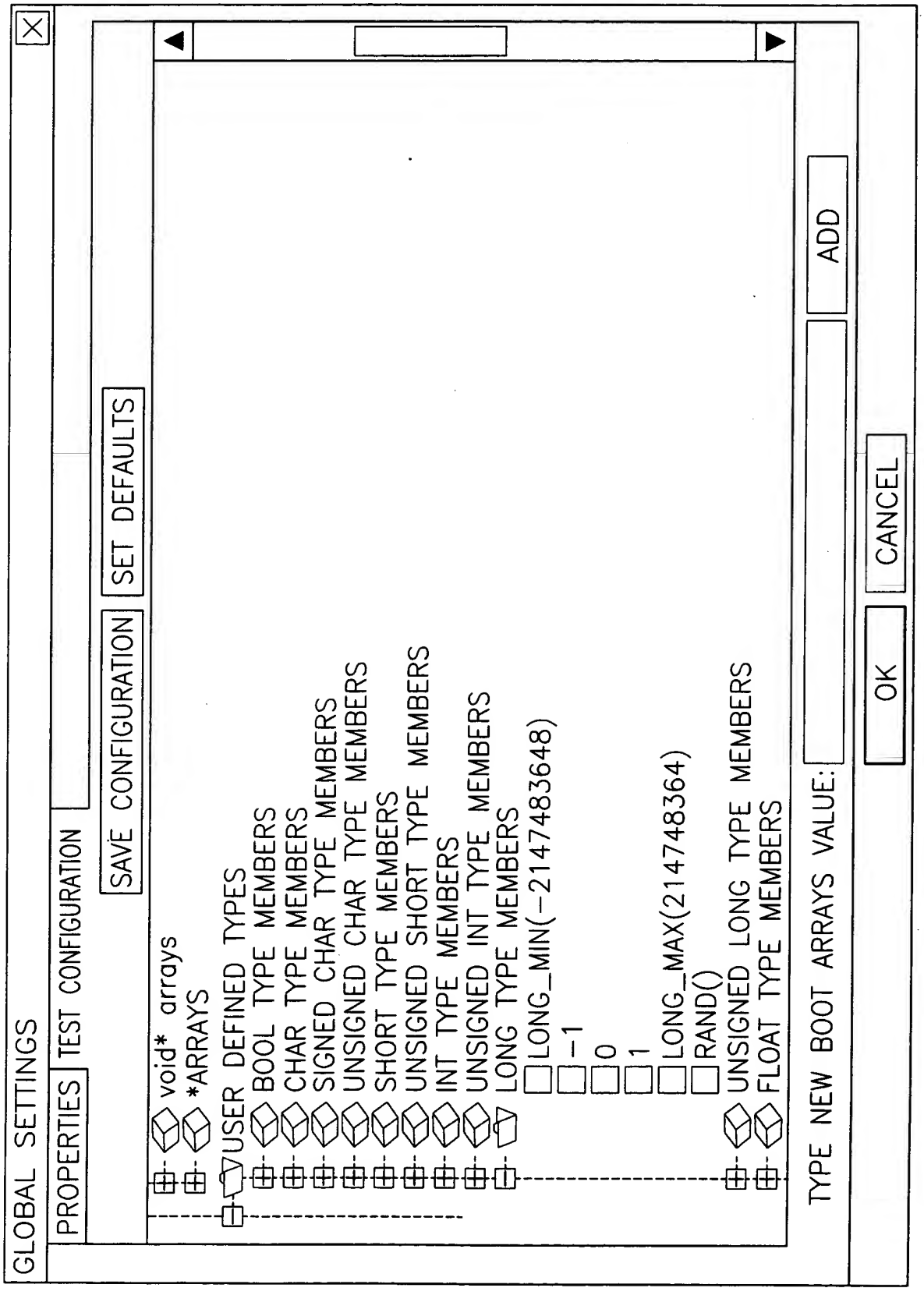

CHOOSE SUBDIRECTORIES IN THE LEFT PANEL
SELECTED FILES LIST
CHOOSE FILES IN EITHER PANEL
OPEN FILE(S)
FILE FILTER: *.c, *.cpp, *.cc, *.cxx
A:\
C:\
%SYSTEMROOT%
.HOTJAVA
ACROBAT3
ADOBEAPP
BIN
BITMAPS
CPPTEST
C++TESTPROJ
EXAMPLES
JRE
1.2
BIN
LIB
LIB.WIN32
INCLUDE
ex01.cpp
ex02.cpp
ex03.cpp
ex04.cpp
ex05.cpp
ex06.cpp
ex07.cpp
ex08.cpp
ex09.cpp
ADD
REMOVE
REMOVE ALL
SELECTED FILE(S):
C:\cpptest\examples\ex01.cpp
C:\cpptest\examples\ex02.cpp
C:\cpptest\examples\ex03.cpp
OK
CANCEL

*FIG. 9*


GLOBAL SETTINGS
PROPERTIES
TEST CONFIGURATION
SAVE CONFIGURATION
SET DEFAULTS
void* arrays
*ARRAYS
USER DEFINED TYPES
BOOL TYPE MEMBERS
CHAR TYPE MEMBERS
SIGNED CHAR TYPE MEMBERS
UNSIGNED CHAR TYPE MEMBERS
SHORT TYPE MEMBERS
UNSIGNED SHORT TYPE MEMBERS
INT TYPE MEMBERS
UNSIGNED INT TYPE MEMBERS
LONG TYPE MEMBERS
LONG_MIN(-2147483648)
-1
0
1
LONG_MAX(2147483647)
RAND()
UNSIGNED LONG TYPE MEMBERS
FLOAT TYPE MEMBERS
TYPE NEW BOOT ARRAYS VALUE:
ADD
OK
CANCEL

# FIG. 10A

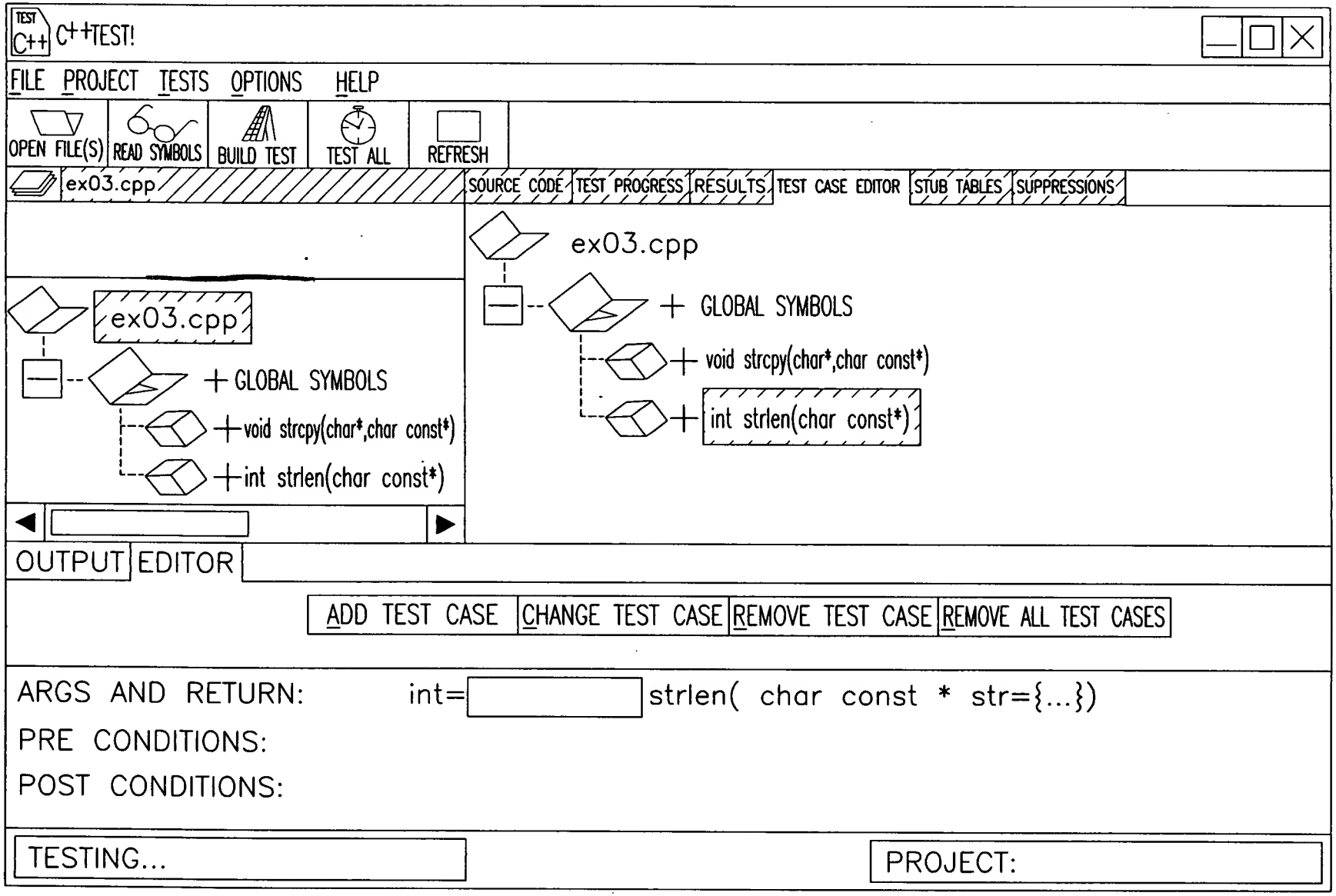



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FIG. 10B

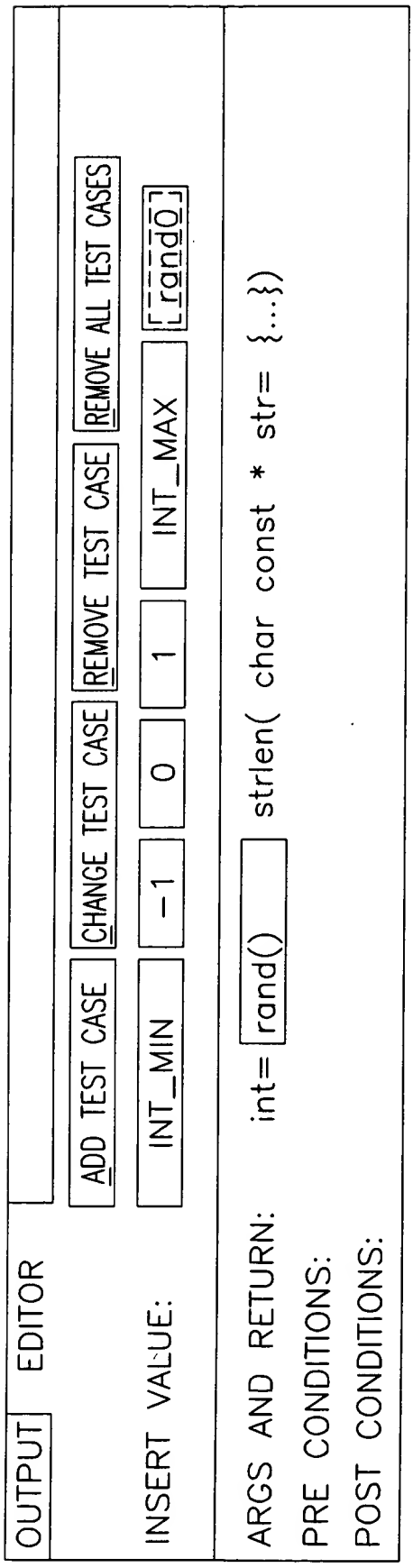

OUTPUT
EDITOR
ADD TEST CASE
CHANGE TEST CASE
REMOVE TEST CASE
REMOVE ALL TEST CASES
INSERT VALUE:
INT_MIN
-1
0
1
INT_MAX
rand()
ARGS AND RETURN:
int= rand()
strlen( char const * str= {...})
PRE CONDITIONS:
POST CONDITIONS:

*FIG. 10C*

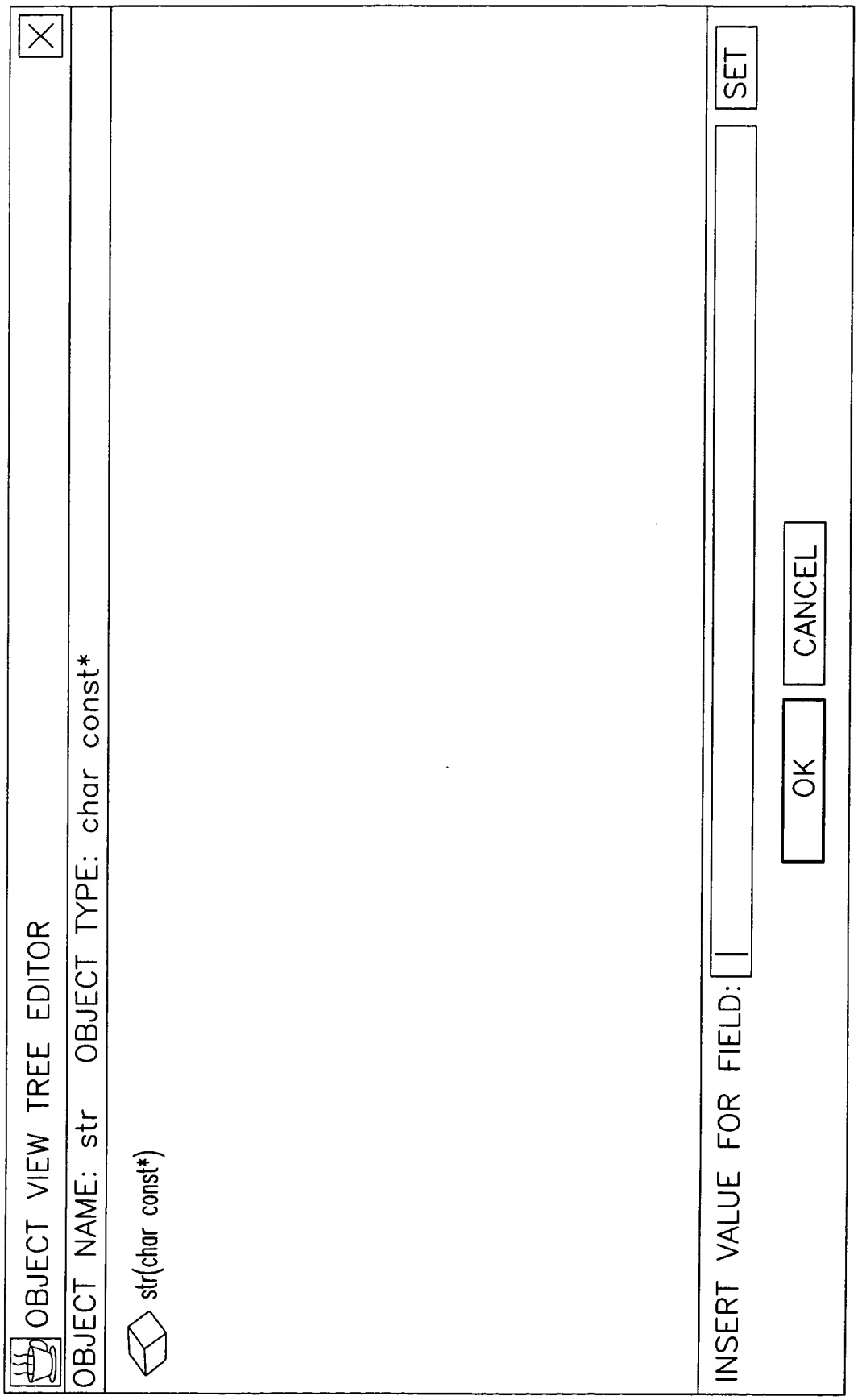
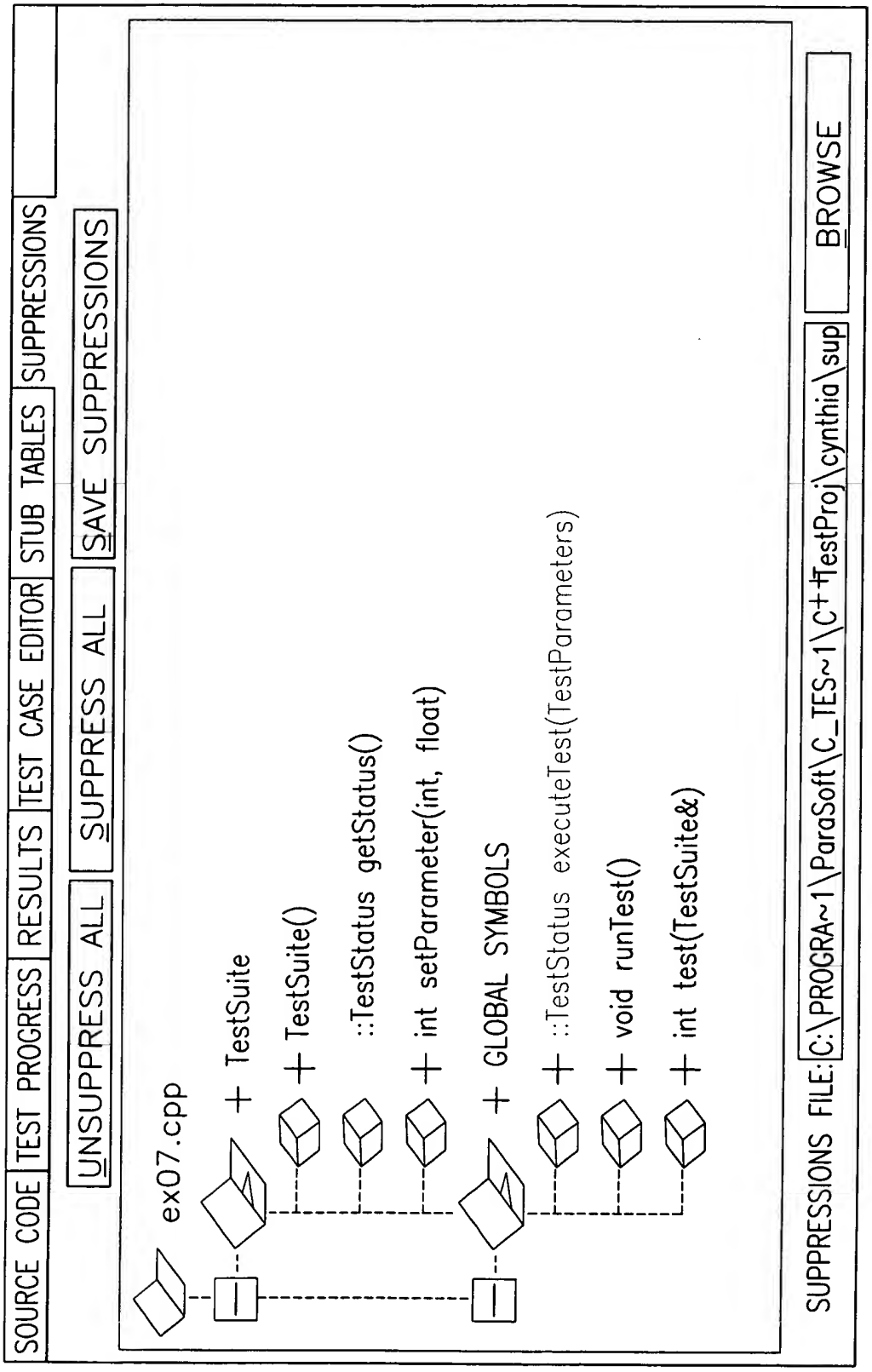

OBJECT VIEW TREE EDITOR
OBJECT NAME: str OBJECT TYPE: char const*
str(char const*)
INSERT VALUE FOR FIELD:
SET
OK
CANCEL

FIG. 11


SOURCE CODE
TEST PROGRESS
RESULTS
TEST CASE EDITOR
STUB TABLES
SUPPRESSIONS
UNSUPPRESS ALL
SUPPRESS ALL
SAVE SUPPRESSIONS
ex07.cpp
+ TestSuite
+ TestSuite()
::TestStatus getStatus()
+ int setParameter(int, float)
+ GLOBAL SYMBOLS
+ ::TestStatus executeTest(TestParameters)
+ void runTest()
+ int test(TestSuite&)
SUPPRESSIONS FILE:
C:\PROGRA~1\ParaSoft\C_TES~1\C++TestProj\cynthia\sup
BROWSE

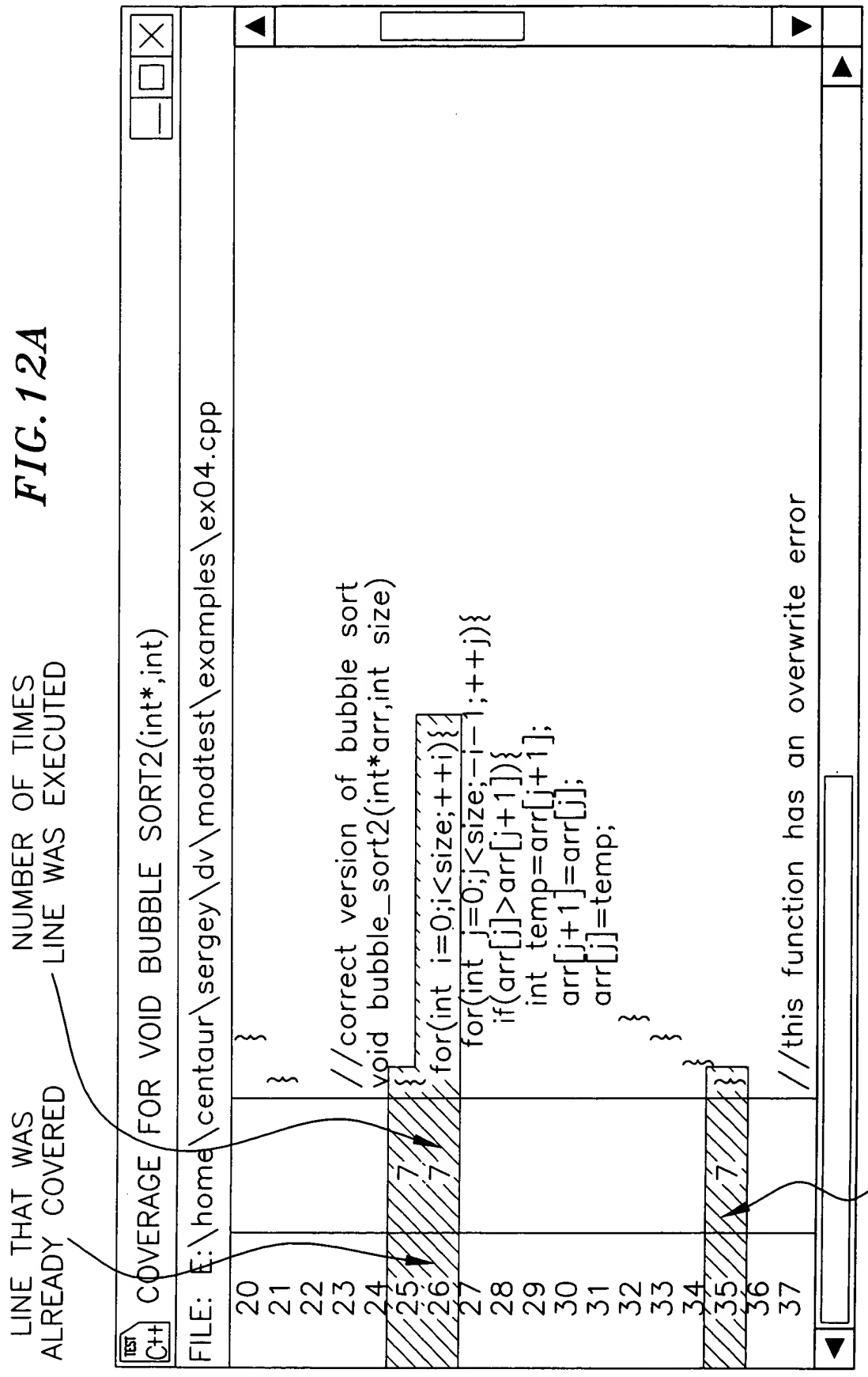

LINE THAT WAS ALREADY COVERED
NUMBER OF TIMES LINE WAS EXECUTED
LINE CURRENTLY BEING EXECUTED
C++ COVERAGE FOR VOID BUBBLE SORT2(int*,int)
FILE: E:\home\centaur\sergey\dv\modtest\examples\ex04.cpp
20 }
21 }
22
23 //correct version of bubble sort
24 void bubble_sort2(int*arr,int size)
25 {
26 for(int i=0;i<size;++i){
27 for(int j=0;j<size;--i-1;++j){
28 if(arr[j]>arr[j+1]){
29 int temp=arr[j+1];
30 arr[j+1]=arr[j];
31 arr[j]=temp;
32 }
33 }
34 }
35 }
36 //this function has an overwrite error
37

FIG. 12A

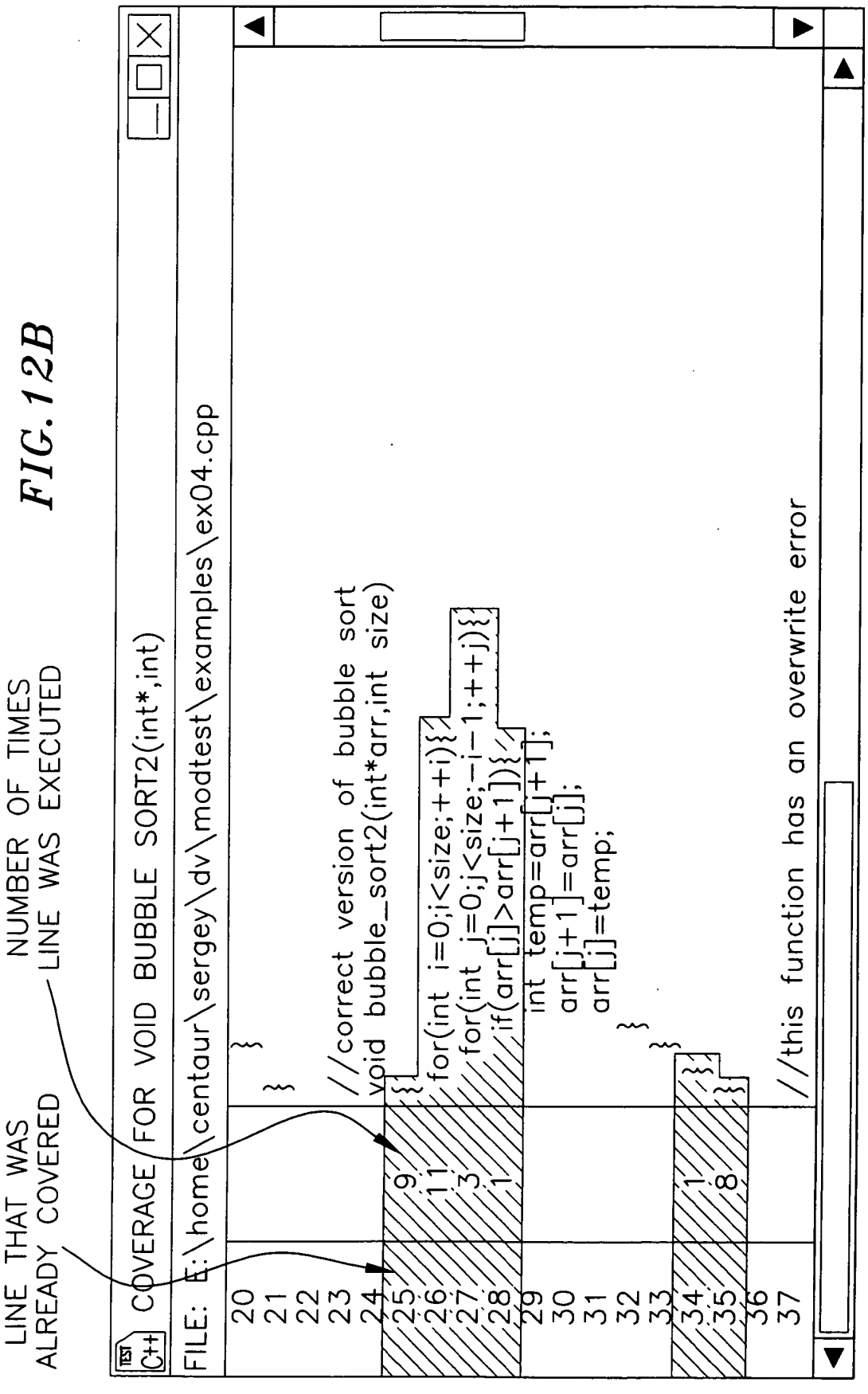

LINE THAT WAS ALREADY COVERED
NUMBER OF TIMES LINE WAS EXECUTED
TEST C++ COVERAGE FOR VOID BUBBLE SORT2(int*,int)
FILE: E:\home\centaur\sergey\dv\modtest\examples\ex04.cpp
20 }
21 }
22 //correct version of bubble sort
23 void bubble_sort2(int*arr,int size)
24 {
25 9 for(int i=0;i<size;++i){
26 11 for(int j=0;j<size;--i-1;++j){
27 3 if(arr[j]>arr[j+1]){
28 1 int temp=arr[j+1];
29 arr[j+1]=arr[j];
30 arr[j]=temp;
31 }
32 }
33 }
34 1 }
35 8 }
36 //this function has an overwrite error
37

FIG. 12B

FIG. 13

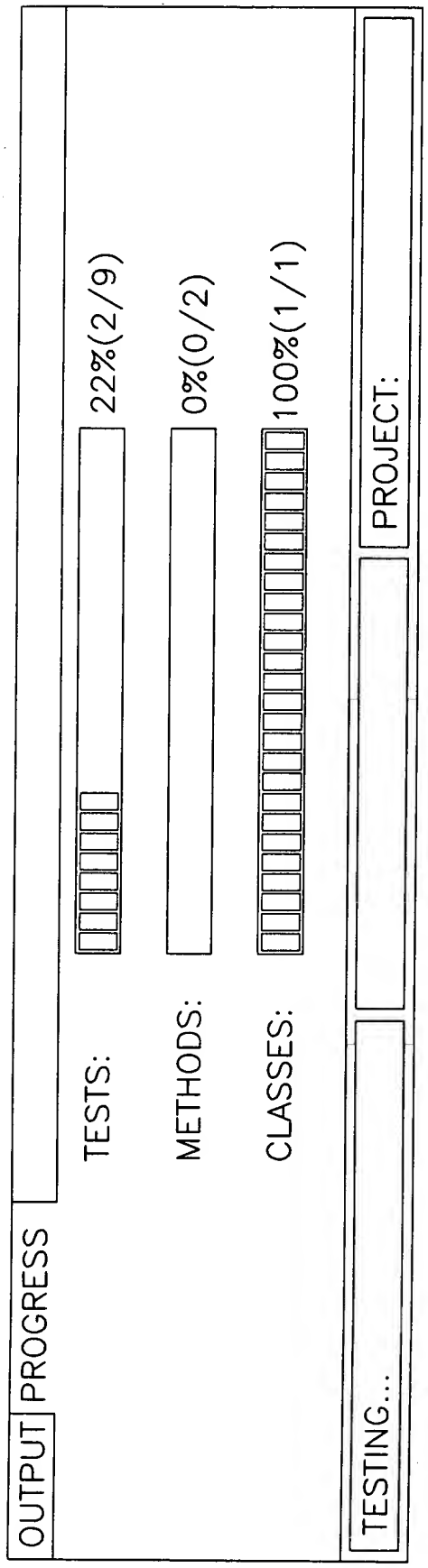

OUTPUT
PROGRESS
TESTS:
22%(2/9)
METHODS:
0%(0/2)
CLASSES:
100%(1/1)
PROJECT:
TESTING...

*FIG. 14A*

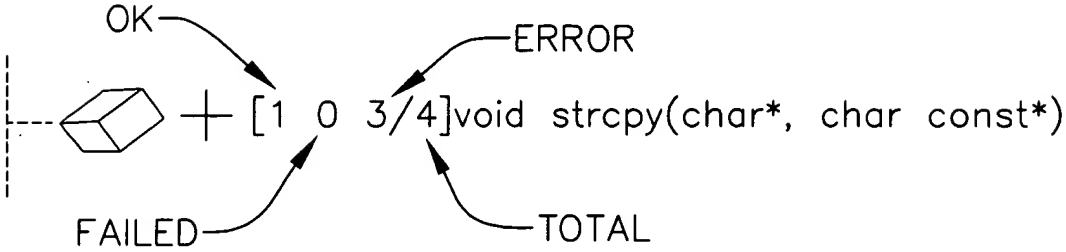



*FIG. 14B*

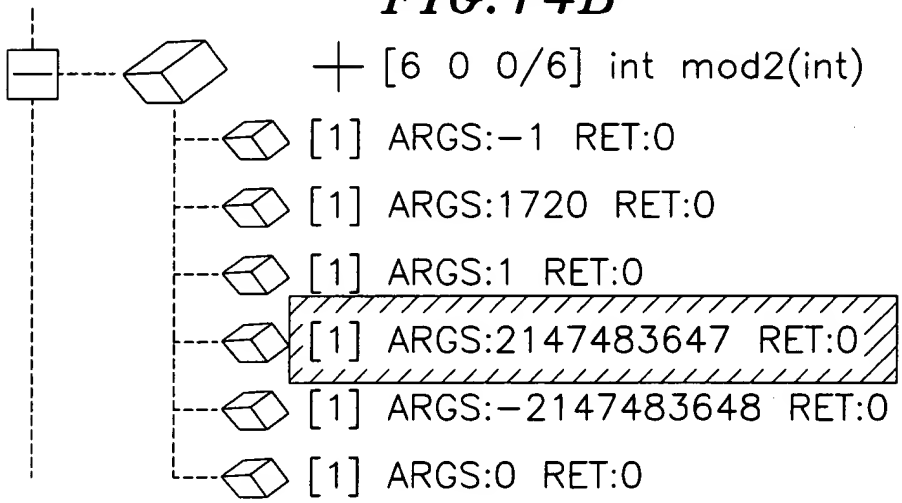



*FIG. 14C*

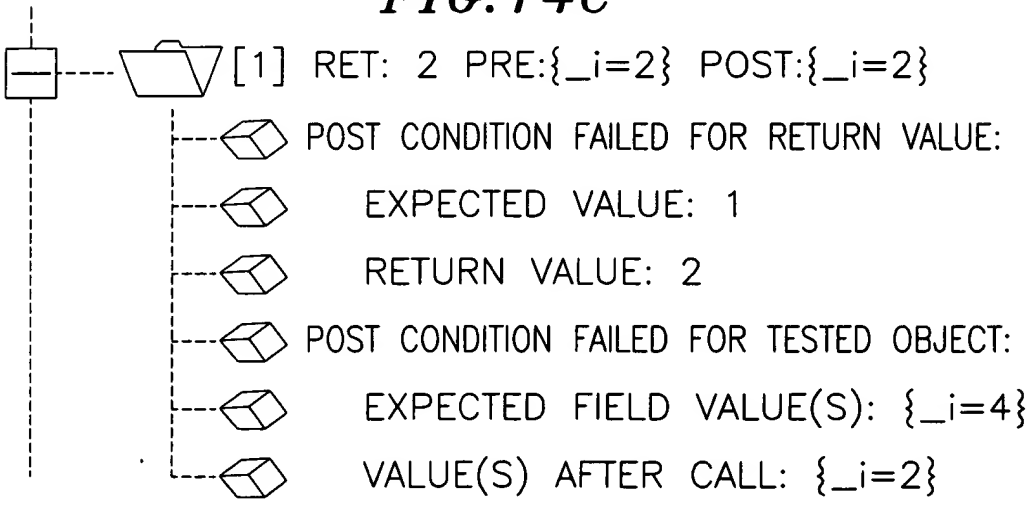
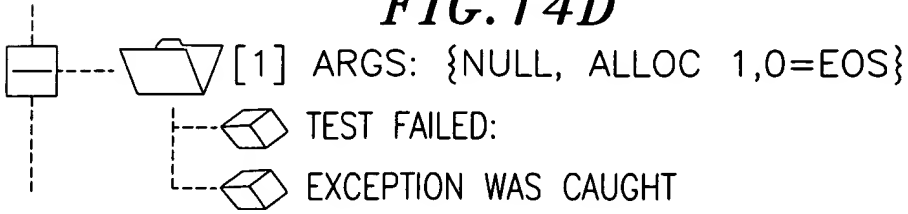
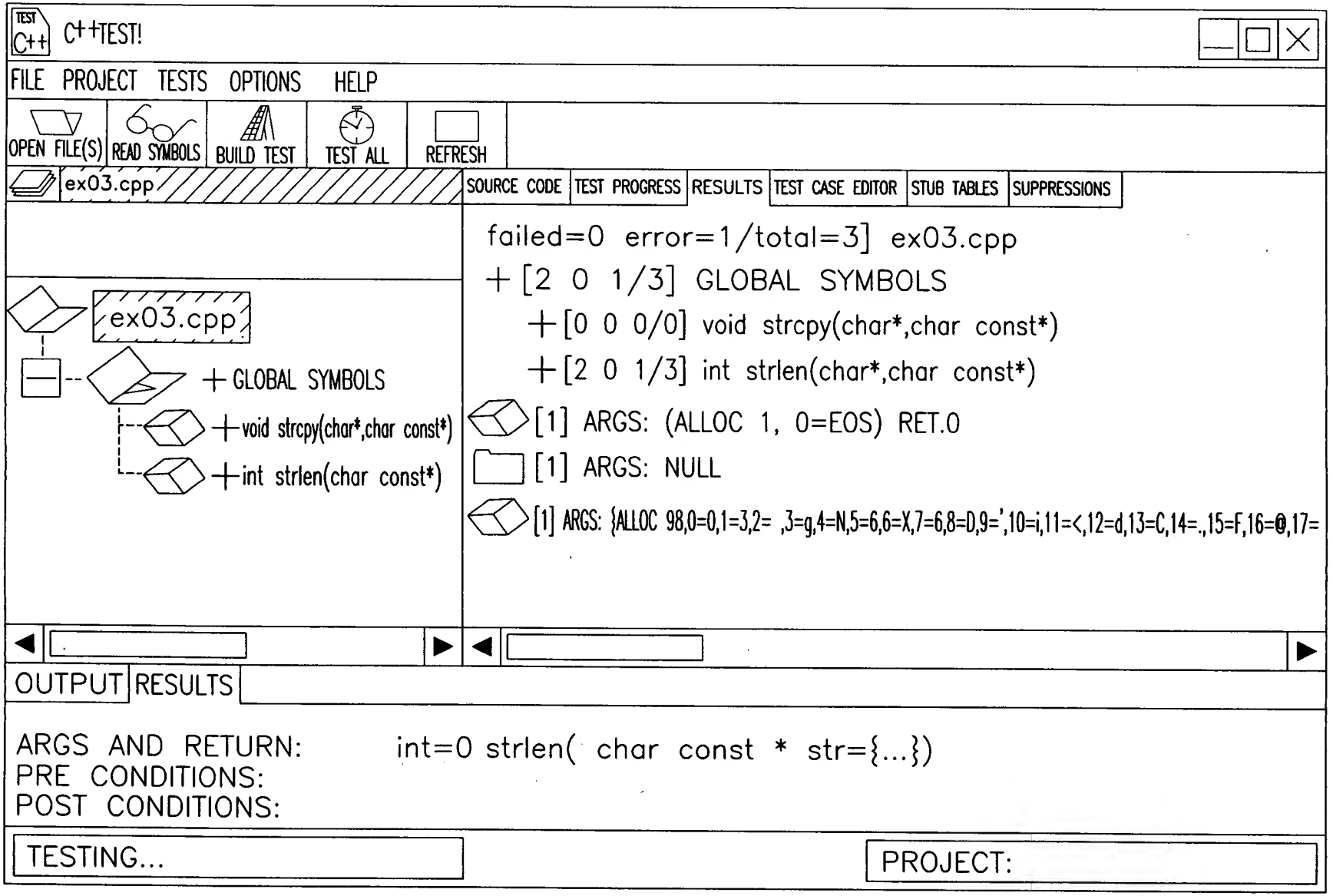



*FIG. 14D*



# FIG. 14E

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